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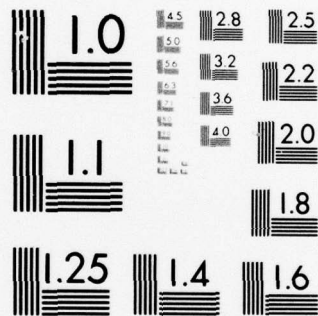
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Hospitalization Rates for Alcoholism in the Navy and Marine Corps*

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Skid row alcoholism is a relatively rare phenomenon.¹ Most alcohol abusers hold jobs, have families and drive automobiles. It is this type of alcoholic, the one who may do the most harm by accidents in the factory and on the highway, who may be exceptionally difficult to uncover in a civilian population.

The prevalence of alcoholism in different populations has not been well-established. Widely varying estimates have been made in the basis of first hospitalization rates,² combined inpatient-outpatient records,³ questionnaires sent to physicians and other official sources,^{4,5,6} door-to-door surveys,^{7,8} formulas utilizing morbidity and mortality data,^{9,10} and composites of the authors' general impressions.¹¹

Prevalence rates may be as dependent upon the method of assessment as upon the actual number of alcoholics. Problems occur every step of the way. Diagnostic criteria must be selected, the population defined, the group exposed to explicit evaluation procedures, and the data compiled once the field work has been completed. Major differences in any step of the investigation make tenuous any generalizations from one study population to another.

One answer to the problem may be to conduct intensive studies of relatively homogeneous samples with standardized diagnostic criteria, record keeping, and follow-up data. Such studies could be carried out to establish prevalence rates in different geographic areas and, then, on the basis of gross sample similarity, specific environmental and demographic variables could be compared for their association with alcoholism in different populations.

One such group of populations is the Armed Services of Western Countries. The services are similar in population selection, type of living conditions and organizational structure, diagnostic criteria (through use of the Department of Defense Disease and Injury Codes or equivalent International Classification of Diseases, Eighth Revision),¹² record keeping, etc. Men of different ethnic and, hence, genetic backgrounds would be entering environments with many similarities. Thus, general

prevalence rates, disease manifestations, and treatment responses could be compared for different areas of the world.

Data from a study of military populations may be most relevant to industry where alcohol related job problems abound.¹³ Navy alcoholism may also become a concern of the civilian psychiatrist. The proposed all volunteer military can be expected to result in a decrease in strength of the medical corps, a deficiency which might be corrected by allowing military personnel to seek private psychiatric care. Thus, the university and private practitioner may see a significant number of military alcoholics.

This investigation is a first step in efforts to outline the extent of alcoholism in the U.S. naval service. The methods used are applicable to other Armed Services and may lay the groundwork for studies comparing the scope of the problem in different areas of the world.

Method

The records utilized in the study were drawn from Navy-wide psychiatric inpatient files for the period July 1965 through June 1969. Data were accumulated as individual case files on all psychiatric patients admitted to Navy medical facilities during this 4-year period. These files were developed and maintained by the Navy Medical Neuropsychiatric Research Unit, San Diego, California, for purposes of epidemiological research.¹⁴

The file was searched for all male cases given hospital diagnoses of alcoholism. The diagnostic nomenclature used was that of the Department of Defense Disease and Injury Codes (DDDIC).¹² The specific diagnostic categories given by the hospital physician using the DDDIC as a guide and used in this study were Alcoholic Psychosis, Acute Alcoholism, Chronic Alcoholism, and Alcoholism, Unspecified Type.

Hospitalization rates were computed separately for Navy and Marine Corps enlisted personnel based upon the total numbers of cases with the above diagnoses admitted during Fiscal Years 1966-1969. Estimates of the populations at risk were derived from routine statistical reports of personnel strengths prepared by the Bureau of Naval Personnel (Navy and Marine Corps Military Personnel Statistics).

The distribution of admissions for alcoholism by month of the year was examined in order to determine if seasonal variations in admission rate were present which might suggest administrative influences as significant in the admission process.

Results

The average Navy enlisted alcoholic, as seen in Table 1, was 33 years old and had served in the military

*Report Number 72-18, supported by the Bureau of Medicine and Surgery, Department of the Navy, under Research Work Unit M4305.07-3009DFA5. Opinions expressed are those of the authors and are not to be construed as necessarily reflecting the official view or endorsement of the Department of the Navy.

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for 13 years, attaining a pay grade (rank) of E-5. Comparable Marine Corps figures revealed an age of 30 after 10 years of service with a pay grade between E-4 and E-5. Chronic Alcoholism was the diagnosis given for almost one-half and Acute for one-third of the sample. Alcoholic Psychosis and Unspecified Alcoholism were relatively infrequent. In each category, the Navy population was older, especially in the unspecified and psychotic groups.

Figure 1 demonstrates the changes in alcoholic incidence by age for the Navy and Marine Corps. Sailors and Marines showed a steady increase in hospitalization rate for alcoholism with age; low rates prevailed to age 25 after which the incidence increased rapidly with age. The highest incidence occurred in the group over age 40.

The changes in incidence over the four years of the study were next examined. For the Navy sample there was a linear increase; the rate for the group over age 35 increased sharply from 230 to 400 per 100,000. The Marine Corps sample showed a slight decrease in incidence rate (from 370 to 300 per 100,000) for the group over age 40 but an increase (from 79 to 192) for the 31 to 35 age group. In Fiscal Year 1969, slightly more than

one out of every 200 Navy enlisted men over age 40 incurred a first hospitalization for alcoholism. This rate was higher than had previously been reported for all neuroses or all character and behavior disorders over a 3-year peacetime period for this same age group.¹⁴

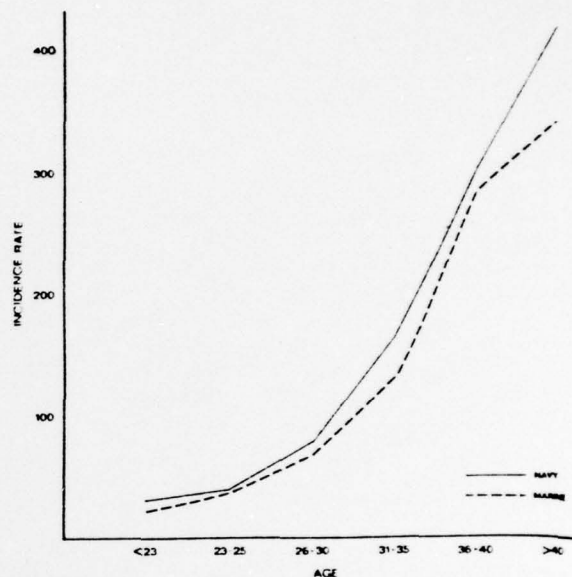


FIGURE II

Figure 2 shows the percentages of admissions for alcoholism and for other psychiatric disorders for each month of the year. If admissions were equally distributed over the year, the percentage admitted each month would be 8.3% (100% ÷ 12). In fact, neither alcoholic nor other psychiatric admissions were equally distributed over the 12 months.

The December-January general psychiatric admission rates appeared to follow the expected pattern for that season — an extremely low rate in December, probably reflecting reluctance to hospitalize (or be hospitalized) during the holidays, followed by a large influx after this postponement or perhaps after failure of outpatient treatment. Alcoholism admissions also increased sharply in January; both alcoholism and other psychiatric admissions then showed a steep decline in February.

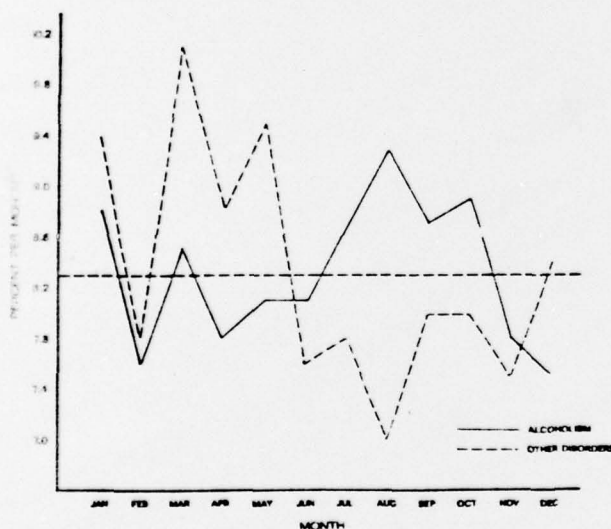


FIGURE I

TABLE I

Characteristics of Navy and Marine Corps Enlisted Alcoholics*

	Alcoholic Psychosis		Acute Alcoholism		Chronic Alcoholism		Unspecified Alcoholism		Total Alcoholism	
	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine	Navy	Marine
Number of cases	207	67	502	153	852	175	152	60	1713	455
Percent of cases	12.1	14.7	29.3	33.6	49.7	38.5	8.9	13.2	100.0	100.0
Mean age (years)	32.6	27.1	28.7**	26.1	35.3**	34.6	31.8	28.0	32.7	29.8
Mean service (years)	12.4	7.9	9.2	7.0	14.9	14.5	12.2	8.5	12.7	10.2
Mean pay grade	5.2	4.0	4.4	3.9	5.4	5.4	5.1	4.3	5.1	4.5

*All first admissions for alcoholism during Fiscal Years 1966-1969.

**The mean age of the Navy Acute Alcoholism was significantly lower than the mean age of any other Navy category; the mean age of the Navy Chronic Alcoholism group was significantly higher than that of any other Navy category.

Alcoholic admissions generally were at high levels early in the year and well below the expected levels later in the year (June-November). Conversely, admissions for other psychiatric disorders tended to be low early in the year (February-June) and high later in the year (July-October). Thus, there were seasonal or phasic variations in both alcoholic and other psychiatric admissions, and other than immediately after the year-end holiday season, there appeared to be a reciprocal relationship between these admission rates. The pattern of monthly admissions for Navy and Marine Corps psychiatric patients in this study was similar to that reported previously for a large Air Force psychiatric service during 1962.²¹

Discussion

The naval service represents a very large industry with a relatively homogeneous environment and medical service. The accumulation of data within this framework is applicable to other U.S. military branches, and possibly to Armed Services of other Western countries and to civilian industry. Through these data sources, one may be able to compare reliable estimates of the incidence of alcoholism in various parts of the Western world.

This investigation used the modified first hospitalization rates for alcoholism during a 4-year period. The admission rates for alcoholism of 80 and 50 per 100,000 for the Navy and Marine Corps, respectively, for FY 1969 are higher than, but in the general range of, rates reported for male civilian populations over age 14, i.e., 60 per 100,000 for Ireland, 20 per 100,000 for Scotland, and 3.6 per 100,000 population for England and Wales.¹⁵

First hospitalization rates are not comparable to general alcoholic prevalence. For example, while the official first hospitalization rate for alcoholism in England and Wales was 3.6 per 100,000 population,¹⁵ the rate for general alcoholism prevalence was estimated to be about 1,100 per 100,000¹⁶ — a 300-fold difference. Attempts at comparing first hospitalization and prevalence rates have been made by Norris.¹⁷ Application of these estimation techniques to the present data yields a risk of hospitalization for alcoholism between age 17 and 40 of 2.633 per 100,000 for the Navy. Such a projection may be inaccurate,² however, and direct methods of estimating prevalence are needed.

The comparatively high rate of alcoholic hospitalization in the naval services may be the result of a number of factors. Selection of high risk individuals is possible, especially in certain job rates,¹⁸ but there is no compelling evidence that particular population subgroups are overrepresented in the Navy and Marine Corps. Special aspects of naval life, including separation from families, periods of boredom, inexpensive liquor, and a social milieu that invites drinking may encourage "predisposed" individuals to develop alcoholism.¹⁹ Close quarters living and 24-hour surveil-

lance by superiors may make detection of alcohol abuse more likely than in civilian life. Administrative policy has a bearing on determining who is hospitalized and what diagnosis is given, but this probably results in an underestimate of the actual alcoholic prevalence as a result of the assignment of diagnoses of character and behavior (personality) disorder and situational maladjustment to alcoholics.²⁰

The rate of alcohol abuse in the Navy appears to be higher than that for the Marine Corps. This may be a real difference or might be the result of some of the factors discussed above. While differences in selection and life styles for Marines and sailors may be relevant, an important factor may be administrative policy. The Marine Corps appears to tolerate less behavior deviance before discharging a man and, thus, may be rid of problem drinkers in the early stages of alcoholism, perhaps before the condition is clinically diagnosed. This interpretation might also explain the younger average age of the Marine alcoholic. This hypothesis will be tested in future investigations.

Over the four years, the incidence of alcoholism increased slightly among younger Marines and substantially among sailors, especially sailors over age 36 in pay grades E-5 through E-7. During the same time period, the incidence of general psychiatric hospitalizations remained stable for the Navy but doubled for the Marine Corps.¹²

This increase for the Navy has taken place despite no major changes in policy or hospital admission procedures and no differences in availability of hospital beds. It may be that an increased incidence for Marines is hidden through assignment of other psychiatric diagnoses although alcoholism is the underlying problem.

There are many similarities between military and civilian alcoholic populations. The same diagnostic format, based on the ICDA-8 system, is used by physicians treating both groups. The mean age of hospitalization for alcoholism, especially Chronic Alcoholism, in both civilian and military populations is between 35 and 40 years.¹⁰ In both groups, there is an indication of increasing hospitalization rates for alcoholism since 1965.^{9,10} The incidence of alcoholism is also noted to increase with age, reaching a peak in the 35-45-year old age group. In both groups, the official rate may be an under-estimate as physicians, conferring disciplinary or financial penalties (insurance or job loss) for their patients, may be reluctant to give official diagnoses of alcoholism when such are warranted. More intensive evaluation of the military population, now in progress by the authors, may reveal further similarities to alcoholics in the general population.

Nonetheless, until further information is available, care must be taken in generalizing from results in military populations. The unique selection factors of passing the service entrance requirements and of participating in a universal health plan may restrict the generality of service-gathered information.

Future work will evaluate the Navy population in greater detail in an attempt to determine biologic and environmental contributing factors, identify prognostic factors, and evaluate treatment modes. At each step, the importance of these data to the understanding of alcoholism in the general population will be evaluated. There may be many similarities between alcohol problems in the Armed Forces and those of general industry. In addition, data from foreign populations, particularly military, will be compared to help elucidate the relative importance of specific biologic and environmental factors.

Summary

Hospitalization rates for alcoholism were determined for Navy and Marine Corps male enlisted personnel during the period Fiscal Year 1966-Fiscal Year 1969. Overall rates were 74 and 44 per 100,000 for the Navy and Marine Corps, respectively. These rates were high compared with male civilian populations of the same age range; the high incidence may be secondary to such factors as separation from families, a social milieu that encourages drinking and close surveillance by superiors and associates. The rate of first hospital admissions is a gross under-estimate of the total alcoholism problem. Alcoholic cases probably are often given other diagnoses early in the course of their illness. Actual prevalence of alcoholism cannot be determined directly at the present time, but reasonable estimates would be in the range of 2-3% of all naval personnel. Admissions for alcoholism show wide seasonal variations, suggesting the importance of administrative factors such as bed space, staff availability, and possibly diagnostic inexperience and inaccuracy.

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4. TITLE (and Subtitle) (5) Hospitalization Rates for Alcoholism in the Navy and Marine Corps.		5. TYPE OF REPORT & PERIOD COVERED Interim rept.
7. AUTHOR(s) E. K. Eric/Gunderson and Marc A./Schuckit		8. CONTRACT OR GRANT NUMBER(s) 17 M4305 07-3009DFA5
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Health Research Center ✓ San Diego, CA 92152		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 16 M4305 07-3009DFA5
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Medical Research & Development Command Bethesda, MD 20014		12. REPORT DATE Apr 11 1972
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Bureau of Medicine & Surgery Department of the Navy Washington, DC 20372		13. NUMBER OF PAGES 4
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Alcoholism Sailors Marines Hospitalization		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Alcoholism is an increasingly important problem for the Navy and Marine Corps. This report, the first of a series on alcoholism in the naval service, has documented the incidence of hospitalization for alcoholism. The hospitalization rate may represent only a small fraction of the actual problem. The diagnostic categories used in the military service are the same as those employed in civilian practice. The findings from this series of studies may have relevance for problems of alcohol abuse in industry and in the general		

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population. Further reports will deal with occupational role factors and situational stresses associated with alcoholism and will outline the natural history of and dispositions rendered for alcoholism in the U.S. Navy and Marine Corps.

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